

1. (Canceled)

2. (Canceled)

3. (Canceled)

4. (Canceled)

5. (Canceled)

6. (Canceled)

7. (Canceled)

8. (Canceled)

9. (Currently Amended) A method for transmitting digital information in a data communication system comprising:

Comprising:

providing an input data sequence;

converting the input data sequence into an input symbol sequence;

multiplying the input symbol sequence by a non-orthogonal over-determined transmission matrix to produce a transmit symbol sequence;

modulating and up-converting the transmit symbol sequence using a modulator and up-converter;

transmitting the transmit symbol sequence in response to the modulating and up-converting;

receiving said transmit symbol sequence;

down-converting and demodulating said received symbol sequence;

excising corrupt symbols in the received symbol sequence in response to the downconverting and demodulating to produce a truncated received symbol sequence and excised corrupt symbols;

creating an inverse recovery matrix based on said excised corrupt symbols;

multiplying the truncated received symbol sequence by the inverse recovery matrix to produce an output symbol sequence;

converting the output symbol sequence into an output data.

10. (Currently Amended) A method for transmitting digital information in a data communication system comprising:

Comprising:

providing an input data sequence;

converting the input data sequence into an input symbol sequence;

multiplying the input symbol sequence by a non-orthogonal over-determined matrix to produce an intermediate transmit symbol sequence;

converting the intermediate transmit symbol sequence with an inverse Fourier transformer to a transmit symbol sequence;

modulating and up-converting the transmit symbol sequence;

transmitting the transmit symbol sequence in response to the modulating modulation and up-converting;

receiving a received symbol sequence responsive to the transmitting;

down-converting and demodulating the received symbol sequence;
converting the received symbol sequence with a Fourier transformer to frequency domain symbols in response to the down-converting and demodulating;
excising corrupt symbols in the frequency domain symbols to produce excised symbols;
creating a recovery matrix based on said excised symbols;
multiplying the frequency domain symbols by the recovery matrix to produce an output symbol sequence;
converting the output symbol sequence into an output data. ;

11. (Currently Amended) A method for transmitting digital information according to claim 2 10 further comprising a step of adding a guard interval to said frequency domain symbols before the transmitting step.

12. (Currently Amended) A method for transmitting digital information according to claim 2 10 further comprising a step of combining frequency domain symbols after the step of excising.

13. (New) A method for transmitting digital information according to claim 9 further comprising a step of inserting an identity matrix into said non-orthogonal over-determined transmission matrix.